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Original Research Article

Assessment of Oral Glucose Tolerance in Women Attending Ante Natal in Some Private Clinics in Port Harcourt: A Measure of Gestational Diabetes

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ABSTRACT

A prevalence study of Oral Glucose Tolerance was performed in 69 women attending ante-natal clinic in various private hospitals in Port Harcourt. After an overnight fast of about 8 – 12 hours, a venous blood sample was taken for fasting blood sugar level before a 75g glucose load was given. Blood samples were taken at 30 minute intervals for a period of 2 hours, after which their blood glucose concentration was investigated using Glucose Oxidase Method. The results obtained showed that there was a percentage deviation of 17.4% under the Fasting Blood Sugar test and 20.3 % after the 2-hours post prandial. The incidence of Gestational Diabetes Mellitus from the results according to World Health Organization (WHO) criteria was present in 5.8% of the total population(FBS - ≥ 7.0 mmol/l and 2-hr post prandial - ≥ 11.1 mmol/l) and Impaired Glucose Tolerance(IGT) was present in 24.6% (FBS - 5.6 - 7.0 mmol/l and 2-hr post prandial - 7.8-11.1mmol/l). Also, 7.25% were impaired in both FBS and IGT at the same time. 1.4% had impaired fasting plasma blood sugar and outright diabetes after 2-hours post prandial. Assessment of gestational diabetes through OGTT is mandatory because it is the only test that determines glucose intolerance in asymptomatic people so that glycaemic control can be achieved as to avoid long-term implications on both mother and child.

Key words: Gestational Diabetes, Oral Glucose Tolerance Test, Impaired glucose Tolerance.

INTRODUCTION

Gestational Diabetes is defined as hyperglycaemia, first detected during pregnancy. Often, one cannot determine whether glucose intolerance antedated the pregnancy or whether hyperglycaemia was provoked by the hormonal milieu associated with pregnancy. (Benjamin C; Lindsay A; Andrew P, 2004). The aim of this study is to determine the prevalence of gestational diabetes in some private hospitals in Port Harcourt as compared to public hospitals where such occurrence are well documented and can easily be determined. Normal pregnancy which is associated with increasing insulin resistance and associated hyperinsulinaemia usually late in the second trimester, is typically mild, and is associated with a risk of macrosomia, neonatal hypoglycaemia and jaundice in the foetus, and a long-term risk of diabetes in the mother. (Edmond A. R. D 2005). The Oral Glucose Tolerance Test is used to screen and diagnose for glucose intolerance in pregnant women. This paper is aimed at assessing the prevalence of gestational diabetes in women attending

ante natal clinics in some private hospitals in Port Harcourt.

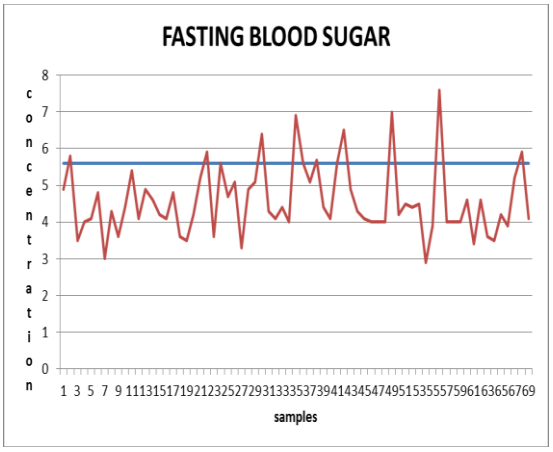
MATERIALS AND METHODS

A total of 69 samples were collected from women attending ante natal clinic in various private hospitals in Port Harcourt. A venous blood sample was taken for fasting blood sugar level before a 75g glucose load was given. Blood samples were taken at 30 minute intervals thereafter for 2 hours. The table below was taken as the diagnostic criteria.

WHO 75g OGTT	Fasting	2 hour Post – prandial
Normoglycaemia	<100mg/dl (5.6 mmol/l)	<140 mg/dl (7.8 mmol/l)
Impaired glucose tolerance	100-126 mg/dl (5.6-7.0 mmol/l)	140-199 mg/dl (7.8-11.1 mmol/l)
Diabetes in pregnancy	≥126 mg/dl (7.0 mmol/l)	≥200 mg/dl (11.1 mmol/l)

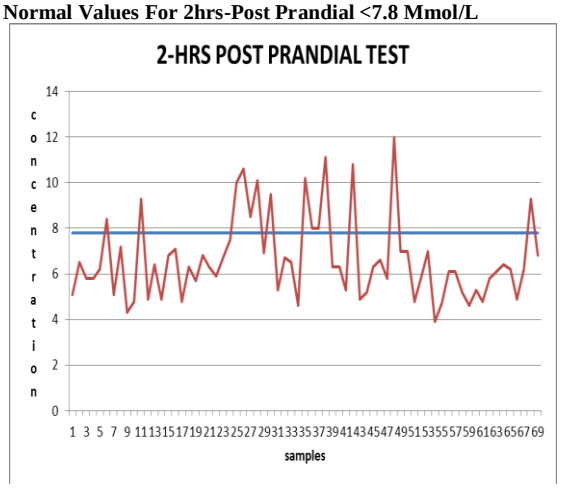
RESULTS

Graphical Representation Of Those Within And Above Normal Values For Fbs <5.6 Mmol/L



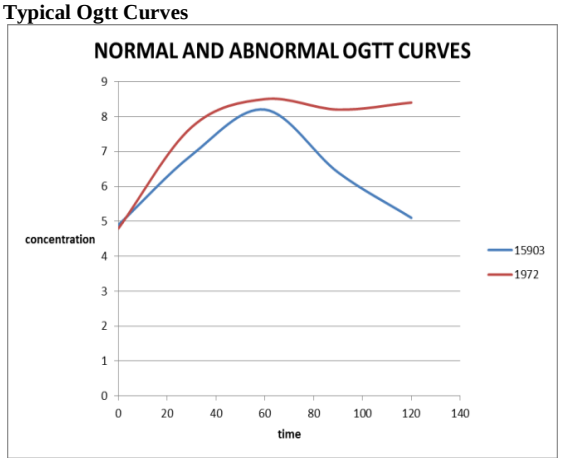
From the 69 samples analysed. There was a percentage deviation of 17.4% under the fasting plasma glucose investigation

Graphical Representation Of Those Within And Above Normal Values For 2hrs-Post Prandial <7.8 Mmol/L



There was a percentage deviation of 20.3% after 2-hours post prandial test from the 69samplesv analysed.

Typical Ogtt Curves



From the chart above, sample 15903 showed a normal OGTT curve while sample 1972 indicated an abnormal curve.

The results also revealed that 24.6% were diagnosed with Impaired Glucose Tolerance in which fasting plasma glucose investigation was 14.5% and 17.4% after 2-hours post prandial.

Also, 5.8% were diagnosed with gestational diabetes mellitus in which 2.9% were diabetic under the fasting plasma glucose investigation and 2.9% after 2-hours post prandial.

7.25% were impaired in both fasting plasma blood investigation and 2-hours post prandial at the same time.

1.4% had impaired fasting plasma blood investigation and outright diabetes after 2-hours post prandial. They were also classified as diabetic

DISCUSSION

The results indicated that there were a larger percentage of women with abnormal glucose tolerance after the 2hrpp test compared to the fasting state. This implies an increased risk in women developing gestational diabetes in the course of the pregnancy or Type 2 diabetes after delivery. It also reflects on the women's diet and lifestyle, and also indicating problems with insulin functioning as indicated by their percentage deviations. There may be need for a repeat for those who had impaired glucose tolerance to make a diagnosis.

The result also show that those with normal OGTT value have normal OGTT curve in which the concentration at the end of the 2-hrpp returned back to normal. Diabetic and impaired glucose tolerance women had abnormal curves in which the 2-hrpp test value did not return back to normal.

The incidence of diabetes in an obstetric population will depend on the policy on routine screening in that population. The incidence in this study is 5.8%.

CONCLUSION

Gestational diabetes mellitus poses great danger to both mother and foetus such as increasing the risk of instrumental deliveries, problems during vaginal delivery due to macrosomia and other complications.

Assessment through OGTT is mandatory as it is the only test that can detect impaired glucose intolerance which is a pre-diabetic state. In this study more than 20% had impaired OGTT; this shows that those women are more likely to be diabetic in the nearest future.

REFERENCES

1. Benjamin C; Lindsay A; Andrew P, 2004). Encyclopedia of Human Nutrition, 2nd Edition. Academic Press. 243 – 551.
2. Chatterjea R.N; Shinde R., (2007).Textbook of Medical Biochemistry, 7th Ed. Brothers Medical Publishers (P) ltd.352 – 353, 355.
3. David L. N; Micheal M. C. (2005). Lehninger Principles of Biochemistry, 4thEd. W. H.Freeman and Company, New York. 901 – 903.
4. Edmond A. R. (2005). Diabetes and Pregnancy - Diabetes Medicine on CD Rom. Medicine Publishing Company. 89 – 90.
5. Hensen B.; Jorde L. B; Lane R.; Reichenbache V. (2004).Kaplan Medical Biochemistry. Kaplan Inc., USA. 159-162.
6. John J. N. (2005).What is Type 2 Diabetes - Diabetes Medicine on CD Rom. Medicine Publishing Company. 18– 20.
7. Paul L.; Polly J. B. (2005). What is Type 1 Diabetes - Diabetes Medicine on CD Rom, 2005. 11 – 13.
8. Robert K. M; Daryl K. G; Peter A. M; Victor W. R. (2003). Harpers Illustrated Biochemistry, 26th Ed.Lange Medical Books/McGraw-Hill Medical Publishing Division.102, 158 – 159, 188.
9. Wikipedia – The Free Encyclipedia. (2012). Gestational Diabetes.
10. William F. G. (2005). Review of Medical Physiology, 22nd Ed. 285, 340, 342 – 343.
11. World Health Organization. (2006) Definition and Diagnosis of Diabetes Mellitus and Intermediate Hyperglycaemia, 22nd Edition. Mc Graw Hill. 2 – 3.

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